

REDISCOVERY OF EKMANIOCHARIS (MELASTOMATACEAE)

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Skean, James D., Jr. (Department of Botany, University of Florida, Gainesville, Florida 32611-, U.S.A.). Rediscovery of *Ekmaniocharis* (Melastomataceae). *Moscosoa* 5: 194-201. 1989. *Ekmaniocharis crassinervis* Urban, a rare species in a monotypic genus endemic to the Massif de la Hotte of Haiti, has been collected for the first time since the two collections of Erik Ekman in 1917 and 1926. A detailed description of the species and the localities of collection are presented.

Ekmaniocharis crassinervis Urban, una especie rara del género monotípico, endémica del Massif de la Hotte en Haití, ha sido colectada por primera vez desde las dos colecciones de Erik Ekman en 1917 y 1926. Se presentan una descripción detallada de la especie y las localidades donde fue colectada.

Among the 882 collections made by Erik L. Ekman in southern Haiti from May-September, 1917, was an axillary-flowered shrubby melastome with unusual collar-like nodal flanges. Urban (1921) described this collection [*Ekman H-208*] as a new genus and species: *Ekmaniocharis crassinervis* Urb. As he believed, this taxon is closely related to *Mecranium* J. D. Hook. (Melastomataceae: Miconieae), a genus of about 20 species of montane shrubs and small trees endemic to the Greater Antilles. *Ekmaniocharis* and species of *Mecranium* are unique within the axillary, 4-merous Miconieae in possessing internal calyx lobes that are fused in a calyptra, which is ruptured irregularly at anthesis, and a fringe of hairs located internally at the bases of the stamens (W. S. Judd, in prep.). Related species of the polyphyletic genus *Ossaea* DC. (see Judd, 1986) lack these features, are generally much more pubescent, and have longer external calyx lobes.

From Ekman's field notes at Stockholm (Book III, p. 197), it appears that he first discovered *Ekmaniocharis* as a rare shrub in "Jardins Coutard" on the northeastern slopes of Morne Vanderveld near La Civette (= Nan Civet) at ca. 800 m elev. This locality is about 10 km northwest of Camp Perrin in the Massif de la Hotte, the cordillera west of the Trouin Valley on the southern península of Haiti. La Hotte is also the center of diversity for *Mecranium*. Nine species are indigenous, seven of them endemic (Skean and Judd, 1986). Ekman returned to Morne Vanderveld in December, 1925, and in his notes (Book IV, p. 4) recounts searching in vain for the *Ekmaniocharis* population, which he presumed had been destroyed by hillside planting.

In December, 1926, Ekman was pleased to locate a second population of *Ekmaniocharis* at ca. 800 m elev. on the Formon (= Formond) plain between Les Platons and Formon, writing "Indeed glad to have a new

locality for this rare Melast., and more so, one in which it is quite abundant." on a label now attached to the specimen at Stockholm. Ekman made a collection of sterile specimens [H-7419] on this excursion, his most successful in the higher elevations of La Hotte, which he described in a lively account of his exploration of the Morne Formon region with Henry D. Barker (Ekman, 1928).

Since its discovery, *Ekmaniocharis* has been cited as a genus of phytogeographical interest, endemic to the Massif de la Hotte. Urban, arguing that the flora of the southern mountains of Hispaniola was distinctly different from that of the central and northern mountains, listed *Ekmaniocharis* as one of eight examples of genera endemic to southern Hispaniola (Urban, 1923). Shortly thereafter, representatives of all except *Ekmaniocharis* were found in the north (Ekman, 1930). Howard (1973) listed *Ekmaniocharis* as one of 26 genera endemic to Hispaniola. Of these, the monotypic genera *Ekmaniocharis*, *Mattfeldia* Urb. (Asteraceae), and *Wunschmannia* Urb. (Bignoniaceae), are restricted to the Massif de la Hotte.

In May-June 1984, I assisted Walter S. Judd in the botanical portion of a biogeophysical inventory of two proposed national parks of Haiti (see Judd, 1987). In June 1984, I collected in the Morne Formon/Pic Macaya region of the Massif de la Hotte in what is now Parc National Pic Macaya. Dr. Judd had made an earlier trip to this remote area in January-February of the same year. This region, though greatly deforested, supports perhaps the largest expanse of primary montane forest in Haiti, and is known for its rich and highly endemic flora (Dod, 1984; Ekman, 1928; Judd, 1987; Moscoso, 1943). Our collections indicate relatively high endemism of the angiosperms (excluding orchids): ca. 35% of the species are endemic to Hispaniola and 19% are endemic to La Hotte (Judd, 1987).

To reach Parc Macaya, we retraced Ekman's route from La Pretre across the Riviere L'Acul, and up the steep slopes to Les Platons. Parking our vehicles at Les Platons, we hiked ca. 10 km across the gently sloping plain of Formon through the village of Sou Bwa (= Sous Bois) to the village of Formon, our center of operations, at the southern base of Morne Formon. The plain (Figure 1), elevation ca. 750–1000 m, is heavily disturbed (ca. 90% open agricultural fields). The original vegetation is almost completely destroyed and persists only in scattered aggregations on dog-toothed limestone. Since we were unable to find *Ekmaniocharis* on either trip, we believed there was a good possibility that the species was extinct.

In July, 1985, I returned to Parc Macaya to collect specimens of *Mecraninm* and search for *Ekmaniocharis* as part of an ongoing monographic study. A more extensive search at lower elevations outside the national park revealed



Figure 1. The Formon plain; habitat of *Ekmaniocharis*; photograph taken from locality of *Skean* 1660, 1665, 2079, 2115, and 2115A; note the extreme deforestation typical of region; house of Mr. Auprano Despagne is in background.

two populations of *Ekmaniocharis*¹. A detailed description of the species (based on my collections and field observations, as well as Ekman's specimens) is presented below with localities of the known populations.

***Ekmaniocharis crassinervis* Urban (Figs. 2 & 3)**

Evergreen shrubs to ca. 2.5 m tall with light gray, smooth to slightly furrowed bark. Twigs slightly 4-angled, soon becoming rounded, green to tinged heavily with red-purple, nodose, 2–3 mm in diameter on internodes, with a prominent collar-like flange, ca. 1–3 mm wide, encircling each node and making total nodal diameter 4–7 mm, smooth to tuberculate/corky, essentially glabrous, but youngest nodes usually with unbranched to irregularly branched and matted multicellular hairs, to ca. 0.2 mm long, often hidden beneath nodal flanges; internodes (1)2.2–5.4(6.8) cm long. *Leaves*

1. I returned to this area in Jan. 1987 and found the site of the largest known population of *Ekmaniocharis* planted in sweet potatoes. No individuals of reproductive size remained - only ca. 10 plants, all less than 1 m tall and adjacent to large rocks. Three collections made on this trip are cited herein, including some nearly-mature dried fruits prepared by P. R. Despagne.



Figure 2. Habit of *E. crassinervis*; Pierre Ronique Despagne standing in *rak bwa* with *Ekmaniocharis* on his right; note plants of *Phyllanthus myriophyllus* to his left. In January 1987 no plants this large remained.

opposite; petiole 3–11 mm long, green to red-purple, smooth or tuberculate/corky, usually caniculate, essentially glabrous; blade coriaceous, ovate, less commonly elliptic, 3.4–11(12.8) cm long, (1.5)2.5–5.4 cm wide, slightly curved adaxially, green, usually drying olive green above and golden-brown below, with youngest leaves often tinged heavily with red-purple; apex acuminate or acute, often curved downward; base slightly or strongly cordate, less commonly rounded; margin flat, or often revolute near base, obscurely serrate \pm throughout, with teeth terminated by caducous, multicellular, apically-curved, acicular projections to ca. 1.5 mm long and ca. 0.2 mm wide; venation acrodromous, suprabasal, with a prominent midvein, 2 conspicuous secondary veins joining midvein 1–3(5) mm above lamina base, 2 less conspicuous, intramarginal secondary veins, and numerous percurrent tertiary veins more or less perpendicular to the midvein; adaxial surface with midvein, 2 major secondary veins, and tertiary veins strongly impressed, the surface glabrous except for minute, conical or cylindrical, unbranched, multicellular glandular hairs, to ca. 0.1 mm long, caducous, or often persisting in impressions of midvein and 2 conspicuous secondary veins; abaxial surface

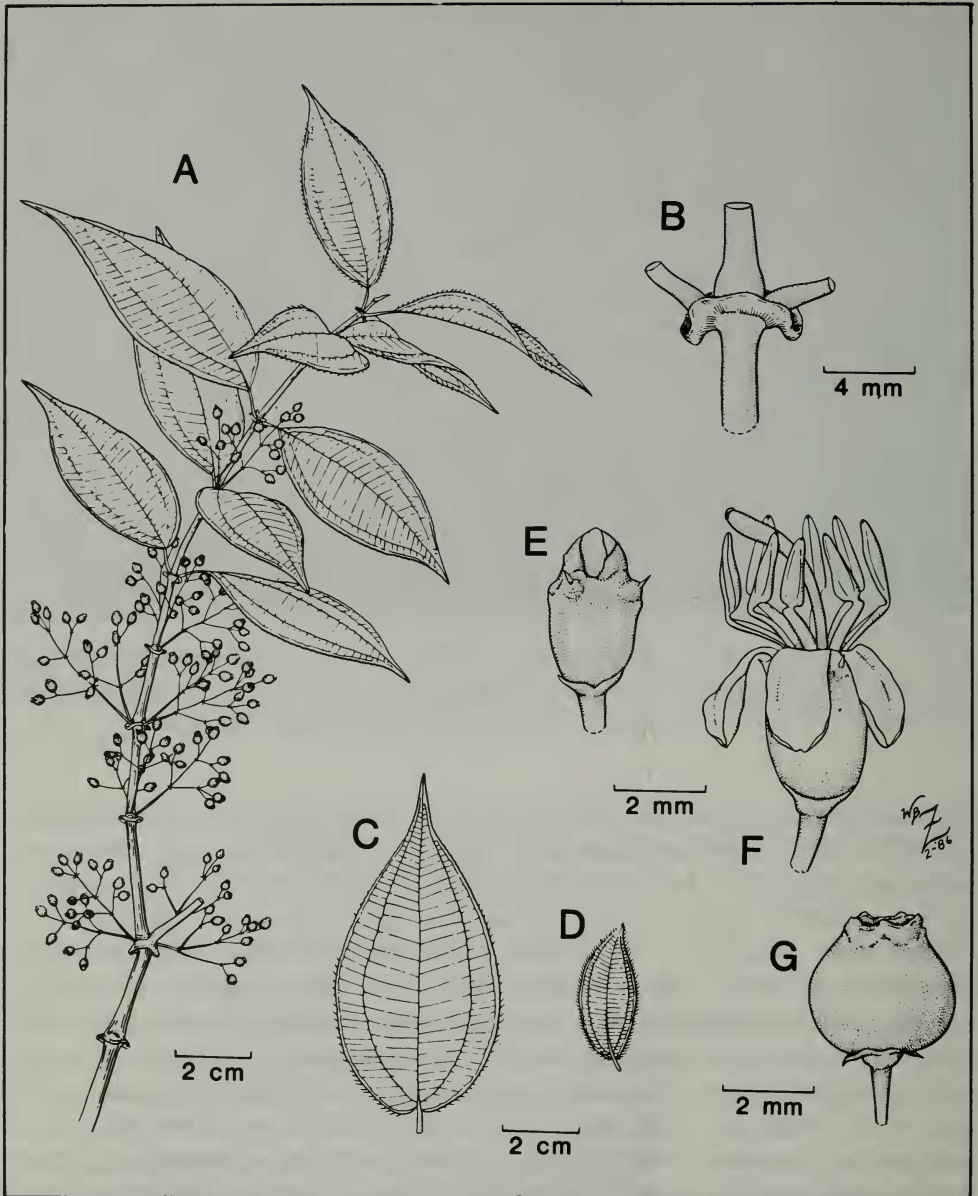


Figure 3. *Ekmaniocharis crassinervis*; A, branch with young fruits (Skean 1665); B, nodal flange (Skean 1665); C, mature leaf (Ekman H208, isotype); D, young leaf (Ekman H208, isotype); E, flower bud (Skean 1665), note rupturing of calyptra formed from fused internal calyx lobes; F, flower (Skean 1665); G, young fruit (Skean 1665).

with midvein and 2 conspicuous secondary veins prominently raised, 2 intramarginal secondary veins and tertiary veins less raised, quaternary and higher order veins reticulate, slightly raised, the surface sparsely pubescent with minute glandular hairs similar to those on adaxial surface, and youngest leaves with caducous, axillary tufts of matted, elongate to irregularly branched, multicellular hairs, to ca. 0.3 mm long, at junction of midvein and 2 major secondary veins. *Inflorescences* axillary, paniculate cymes borne among leaves and on leafless nodes below, often with two inflorescences in the same leaf axil, each 2.5–7.1 cm long, 1.5–3.6 cm wide, 1–2 branched, the axes green to tinged heavily with red-purple, with opposite, caducous, narrowly triangular bracts to ca. 2.1 mm long, rarely these bracts foliar, with blades to ca. 1.9×0.7 cm and petioles ca. 1 mm long; peduncle (6) 15–23 (31) mm long. *Flowers* 4-merous, sessile, each subtended by 2 opposite, narrowly triangular bracteoles, ca. 0.5×0.3 mm. *Hypanthium* green to tinged heavily with red-purple, cylindrical or very slightly obconical, 2–2.8 mm long, 1.9–2.4 mm wide, smooth, very sparsely pubescent with minute glandular hairs similar to those on leaves; portion free from ovary 0.7–1.2 mm long; proximal non-membranous portion of calyx (bearing external calyx lobes) ca. 0.4 mm long. *External calyx lobes* reduced to 4 triangular teeth, ca. 0.5×0.4 mm, often with caducous acicular apices. *Internal calyx lobes* fused in a calyptra, ca. 0.9 mm high, which is ruptured irregularly at anthesis, terminated by a caducous apiculum ca. 0.1 mm long. *Petals* 4, purple, obovate, 2.1–3.5 mm long, 1.4–1.9 mm wide, reflexed; apex rounded, emarginate, with an asymmetrically placed notch ca. 0.3 mm across; margin entire, often slightly involute. *Stamens* 8, inserted above an adaxial erose fringe ca. 0.3 mm high, geniculate, folded adaxially in bud; proximal segment (filament) purple, 1.8–2.4 mm long, flattened dorsally, narrowly obovate, ca. 0.3 mm wide at base, ca. 0.4 mm wide near apex, curved; distal segment (anther sacs and connective) 1.7–2.1 mm long, ca. 0.5 mm wide, ovate or oblong, the anther sacs white, 1.5–1.8 mm long, adaxially inrolled, dehiscing confluent by a single apical pore, the portion of connective below the anther sacs purple, 0.2–0.3 mm long, flattened dorsally. *Ovary* inferior, 1.2–1.9 mm long, 1.4–1.8 mm wide, the apex prolonged into a fused, collar-like, 8-ribbed appendage, ca. 0.8 mm high, which encases the folded distal stamen segments in bud and encircles the style. Style light purple, 4.6–5.8 mm long, slightly obconical, ca. 0.3 mm wide at base, ca. 0.5 mm wide near apex, strongly curved; stigma papillose, ca. 0.25 mm across. *Berries* (nearly mature) green, tinged with red-purple, turning deep purple-black, urceolate, ca. 4×5 mm, very sparsely pubescent with minute glandular hairs, many-seeded. *Seeds* (nearly mature) tan,

narrowly cochleate, ca. 0.6×0.4 mm, papillose. Mature fruits and seeds not known.

Recent collections (all deposited at FLAS, duplicates to be distributed): HAITI. Dept. du Sud, Massif de la Hotte, extremely disturbed vegetation on dog-toothed limestone in open fields ca. 2 km N of Les Platons along trail from Les Platons to Sou Bwa, ca. 850 m elev., only 2 plants seen, 4 July 1985, *Skean 1642* (sterile); *ibid.*, ca. 0.75 km S of Sou Bwa among limestone, ca. 50 m S of the house of Mr. Auprano Despaigne, ca. 905 m elev., ca. 30 plants seen, 5 July 1985, *Skean 1660* (young fr.); *ibid.*, 6 July 1985, *Skean 1665* (fl., young fr.); *ibid.*, 31 Dec. 1986, *Skean 2079* (sterile); *ibid.*, 4 Jan. 1987, *Skean 2115* (sterile), *Skean 2115A* (fr.).

Ekman's Collections: HAITI. Depart. du Sud, Morne de la Hotte (Massif de la Hotte, Morne Vanderveld, "Jardins Coutard"), in steep NE mountain woods, ca. 800 m elev., nonrare occurrence, 10 June 1917 (fl), *Ekman H-208* (holotype! and isotype! S); *ibid.*, Massif de la Hotte, western group, Torbec, between Les Platons and Formon, ca. 800 m elev., not rare, sterile shrub, 26 Dec. 1926, *Ekman H-7419* (EHH, GG, IJ, S, US).

Ekmaniocharis is a rare component of moist *rak bwa*, i.e., hardwood forests on dog-toothed limestone, on the Formon plain at ca. 800–900 m elev. Few areas of native vegetation remain at these elevations, increasing the rarity of the plant. Figure 1, taken from the site of the largest population known, shows the destruction of the habitat typical of the Formon plain. Where it survives, *Ekmaniocharis* occurs as a shrub to ca. 2.5 m tall rooted in shallow soil among exposed limestone rocks. The habitat of the plant is illustrated in Figure 2. The plants flower in June (*Ekman H-208*) and July, but no animals were observed to visit the flowers. Common species associated with *Ekmaniocharis* include the ferns *Campyloneurum vexatum* Eaton and *Elaphoglossum crinitum* (L.) Christ, the shrubs *Besleria lutea* L., *Lepianthes umbellatum* (L.) Raf., *Lobelia robusta* Graham, *Miconia subcompressa* Urb., *Myrsine coriacea* (Sw.) R. Br. ex Roem. & Schult., *Phyllanthus myriophyllus* Urb., *Piper aduncum* L., *Psidium guajava* L., *Psychotria pubescens* Sw., *Rytidophyllum bicolor* Urb., and *Vernonia saepium* Ekm., and the weedy vine, *Smilax havanensis* Jacq.

Urban distinguished *Ekmaniocharis* from *Mecranium* by the presence of what he called "connate, branchlike stipules resembling a cupule" (Urban, 1921; see Fig. 3, a–b). Similar nodal outgrowths are found in other Miconieae, e. g., *Miconia condylata* Wurdack. These nodal flanges and the presence of well-developed caducous projections on the leaf serrations (Fig. 3, c–d) may be used to distinguish *Ekmaniocharis* from *Mecranium*.

Although phenetically distinct, *Ekmaniocharis crassinervis* and species of

Mecranium share some unique, and relatively complex, derived characters. Therefore, from a cladistic viewpoint, the generic separation of *Ekmaniocharis* from *Mecranium* may not be justified. This conclusion, however, would require support from a thorough cladistic analysis, which is currently underway.

Acknowledgements

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